

Multi-Domain Battle

Driving Change to Win in the Future

Gen. David G. Perkins, U.S. Army

This is the first of three articles discussing the impact of multi-domain battle through the lens of the U.S. Army Training and Doctrine Command. This article frames the ideas taking shape for how land forces might conduct future operations under the multi-domain battle concept being developed by the Army Capabilities and Integration Center. In recognition of the centennial of American Expeditionary Forces entering World War I, the articles will incorporate relevant historical observations and lessons to help drive home the new and differentiate it from the old.

“Perhaps we are losing too many men,” is not the way to start a conversation about changing doctrine.¹ Army Gen. John J. Pershing penned these words in August 1918 after American Expeditionary Forces (AEF) sustained more than sixty thousand casualties over about four months.²

When the United States entered World War I in the spring of 1917, Pershing firmly believed the Germans would be driven from the trenches and defeated in the open by self-reliant infantry employing a doctrine of *open warfare*.³ Open warfare doctrine imagined infantry brigades maneuvering outside the trenches that had immobilized the war months after it began in 1914. Instead of stationary fighting from trenches, U.S. brigades supposedly would employ speed and mobility to inflict decisive defeats on the Germans. Though Pershing coined the phrase open warfare, the ideas were consistent with prewar doctrine—heavily influenced by German military thought—that minimized the use of artillery and machine guns.

However, casualties suffered by German and Allied forces starting in 1914 forced the combatants to realize that the lethality of rapidly firing artillery, machine guns, mortars—and later, gas, tanks, and aircraft—made tactics such as those advocated by Pershing’s open warfare doctrine almost suicidal. European armies, confronting unsustainable

casualties, had to adapt and develop new doctrine and tactics after a stalemate settled in.

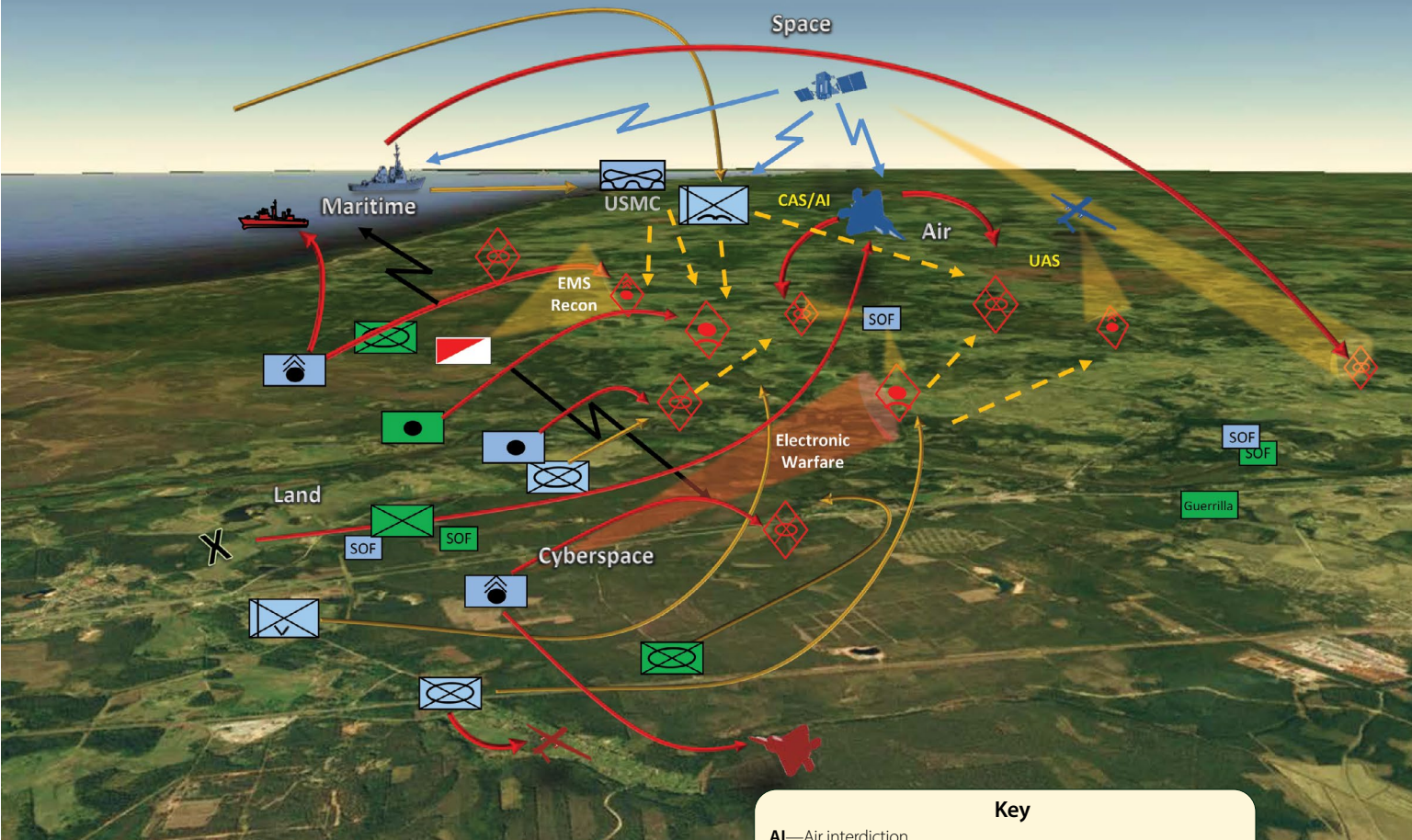
Facing his own unsustainable list of casualties, Pershing directed his General Headquarters to conduct a doctrinal review.⁴ What little change came was too late; over half of U.S. casualties in World War I happened in late 1918 during the Meuse-Argonne Offensive.⁵ Despite the talk of change, open warfare persisted as leaders such as Pershing maligned Allied tactics and doctrine while continuing to create extraordinarily aggressive and optimistic attack plans.⁶ They underestimated the importance of heavy firepower and their control, communication, and coordination.⁷

The approaching centenary of the end of World War I provides a moment to reflect on how land forces should adapt to changing operational environments. Despite the heroism of the AEF in 1917 and 1918, it is clear that the Army did not adapt its doctrine for the operational conditions that existed on the Western Front before the United States entered the war. The United States had an opportunity to observe and learn from European experience. Instead, the Army persisted with doctrine that had already been found wanting. The United States now faces a comparable moment. Operational environments are changing rapidly. However, when called to fight, the Army cannot afford the price paid in blood during World War I. This time, the Army must understand the changes as they occur and anticipate how they will affect operations. Doctrine must evolve before the Army faces potential enemies, not after. We must learn from careful study and analysis so we will not have to learn from bitter experience.

Changes to How the Army Will Fight

When the Nation calls upon the Army to fight and win its next war, the operational environment will be unlike the circumstances of our recent experiences. It will be defined by an enemy who will challenge our ability to

Achieving Cross-Domain Synergy



This graphical representation is one of the first to depict the inherent integration and convergence of the future multi-domain battlefield. The scenario here shows joint forces achieving cross-domain synergy by applying the multi-domain battle concept. (Graphic by author)

Key	
AI	—Air interdiction
CAS	—Close air support
EMS Recon	—Electromagnetic spectrum reconnaissance
SOF	—Special operations forces
USMC	—United States Marine Corps
UAS	—Unmanned aircraft system

maintain freedom of maneuver and superiority across the air, cyberspace, land, maritime, and space domains and the electromagnetic spectrum. As U.S. forces arrive on the battlefield with high-tech and expensive precision-guidance missiles, enemies may counter with innovative and effective responses costing pennies on the dollar. To counter our state-of-the-art communications network, they may hack in, disrupt, and deny our assurances through a well-organized group of experts hitting targets purposefully selected with intelligence and acting in accord with a larger maneuver plan—all executed from outside the area of operations. The Army Capabilities and Integration Center is developing the multi-domain

battle concept to help prepare the Army for these possible future battlefields, in which current American strengths could become future weaknesses, and domains of present dominance could become areas of violent struggle.

Doctrine describes how the Army conducts and trains for operations today with the capabilities it already has. Conversely, *concepts* describe how the Army may operate in the mid- to far-term future based on anticipated future operational environments. When published in U.S. Army Training and Doctrine Command pamphlets, concepts guide the study, experimentation, and evaluation of new solutions for doctrine and for organization, training, materiel, personnel, and facilities (the

force domains, together known as DOTMLPF). When validated, concepts lead to changes within the force domains, including doctrine.

Change is never easy, especially in large organizations. The Total Army is a massive enterprise of over 1,030,000 soldiers plus thousands of Army civilians spread across the globe in a wide variety of operations and readiness stages.⁸ To change the Army and to prepare it for future operations is not as simple as rewording the Army's doctrine and purchasing new equipment. Due to its size, the Army will change on a scale beyond that imaginable by almost every Fortune 500 company. That change requires the Army to develop an operational concept based on a thorough campaign of learning that will guide changes across the entire force.

In *Forging the Sword—Doctrinal Change in the U.S. Army*, Benjamin M. Jensen explains that doctrinal change takes hold through shock and competition or through cultural self-selection.⁹ Change from shock and competition is change by force, from failure or from observing others' failures. Armies that fail before changing may not have the luxury of keeping their preferred organizational structures; they must quickly adapt to the immediate realities of what will work in their current fight. With failure, an army is forced to adapt immediately or to continue to fail and even lose. Among many examples, Pershing's failures in doctrine reverberate this truth—U.S. forces were victorious in

the end but after too many lives lost.

Gen. David G. Perkins, U.S. Army, is the commanding general of the U.S. Army Training and Doctrine Command. He holds a BS from the United States Military Academy, an MS in mechanical engineering from the University of Michigan, and a master's degree in national security and strategic studies from the Naval War College. He previously served as commander of the U.S. Army Combined Arms Center at Fort Leavenworth, Kansas.

Change from cultural self-selection, however, is proactive change. It is change by choice, made by anticipating problems and evolving to prevent failure. In proactive change, leaders have the time and opportunity to focus change reflective of their cultural and organizational strengths.¹⁰ The best historical example of change by choice is the AirLand Battle doctrine of the 1980s.

AirLand Battle as a Model for Change

In contrast to the bloody learning by experience that the AEF endured in World War I, the development of AirLand Battle offers a better model for change. The genesis of AirLand Battle came from observing Israel's devastating lack of readiness at the start of the October War in 1973 (also called the Yom Kippur War or the Ramadan War), when Egypt and Syria attacked Israel in the Sinai Peninsula and the Golan Heights, respectively. Since 1967, a confident Israel had considered itself ready to repeat its decisive victory over an Arab coalition in the Six-Day War. In 1973, however, the Arab armies advanced quickly, and Israeli forces suffered heavy casualties before their eventual victory. With the Arabs supplied by the Soviet Union and the Israelis supplied by the United States, the conflict pitted Soviet and American capabilities against each other in combat.¹¹ The U.S. Army's ability to observe and learn from Israel's mistakes allowed it to change proactively and to build on strengths unique to it and the North Atlantic Treaty Organization.

Army leaders in 1973 understood that the Army was a force ready to fight counterinsurgency in Vietnam, not major combat on the plains of Central Europe. They understood that their likely operational environments had changed and that the Army needed to change to keep pace. Over the course of more than eight years, AirLand Battle was developed in an ongoing process, first as a concept, and ultimately as doctrine, in the 1982 version of Field Manual (FM) 100-5, *Operations*.

Of the many takeaways from AirLand Battle, three offer value regarding multi-domain battle. The first is the introduction of *operational art*, as it is known today, and the *battlefield framework*.¹² The framework gave Army commanders a clear visualization of their battlefield, codified as *deep*, *close*, and *rear* areas. The second was *decentralized execution*, requiring commanders to continuously monitor their sector for possibilities to exploit—a precursor to mission command.¹³ Third, *integrated battle*, a term coined by Douglas Skinner, was the idea of maneuver, synchronization, and firepower being integrated in execution on the battlefield.¹⁴ While not specifically defined in FM 100-5, integrated battle as an idea permeates the document. Integrated support of all arms and services is critical in *close operations*, to include integration of airpower for attacking the enemy in echelon.¹⁵

The fall of the Soviet Union and the collapse of the Warsaw Pact ended the threat that AirLand Battle was intended to counter. Instead, in 1991, Operation Desert Storm offered a chance to fully validate AirLand Battle as doctrine. In executing the seemingly impossible left hook, Army Gen. Norman Schwarzkopf relied heavily on planners who had graduated from the School of Advanced Military

solvable problems through real-world scenarios. They give us the opportunity to fully develop the what, why, and how of change. They force us to change.

For the multi-domain battle concept to eventually succeed as doctrine, and in the other force domains, the first step is to clearly understand the potential operational environments it is meant to address. The 2017 white paper “Multi-Domain Battle: Combined



...the United States is reaching the end of a period in which it can make change by choice, without having taken severe losses. The Army must evolve and change.



Studies versed in maneuver warfare and operational art. Decentralized execution combined with combined arms maneuver had been honed to a knife's edge through constant rotations and exercises at combat training centers. That tactical superiority became clear to the world during the one-hundred-hour ground war. Operation Desert Storm was AirLand Battle's debutante ball, and it proved that an effective process adjusts the doctrine before the next battle.

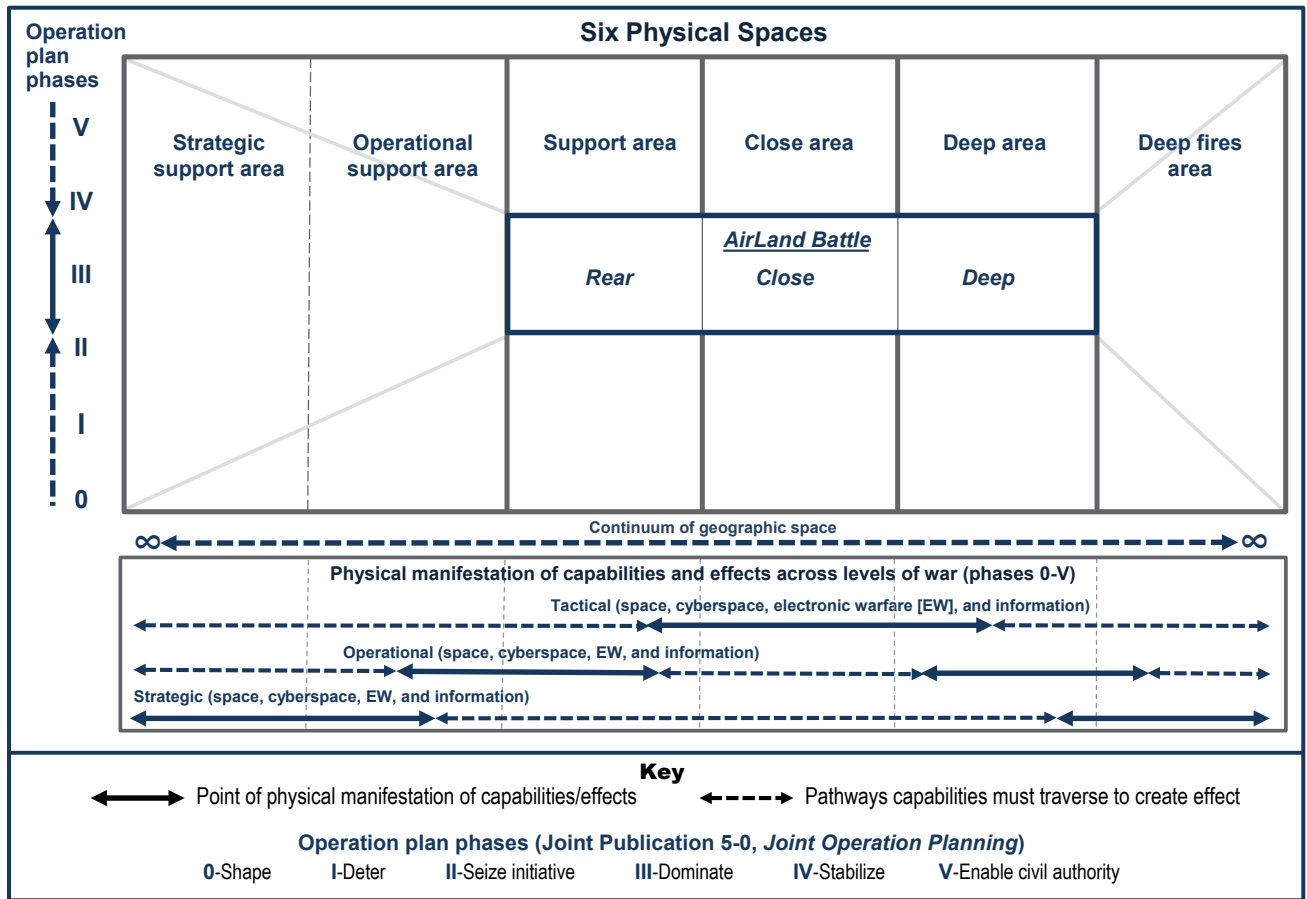
The Multi-Domain Battle Concept for the Future

In developing the multi-domain battle concept, the Army seeks to follow the path successfully blazed by the developers of AirLand Battle. It intends to avoid the sort of bloody, traumatic learning that the AEF experienced in 1918. Multi-domain battle is a concept driven by proactive choice and informed by the threat of failure. It is an evolution of the Army operating concept, detailing a response to our observations of developments in the South China Sea, Russian New Generation Warfare, and continued challenges in the Middle East. It is an acknowledgment that the United States is reaching the end of a period in which it can make change by choice, without having taken severe losses. The Army must evolve and change.

Concept development gives us the opportunity to define complex problems, develop a framework to better understand those problems, and then break those complex problems into smaller, more detailed, and

Arms for the 21st Century” defines the central problem this way: “U.S. ground combat forces, operating as part of ... joint, interorganizational, and multinational teams, are currently not sufficiently trained, organized, equipped, or postured to deter or defeat capable peer enemies to win in future war.”¹⁶ Whereas in AirLand Battle, the terrain, politics, and enemy were known, today, multiple adversaries of varying and growing capabilities are actively achieving their objectives under the threshold of armed conflict. Military action in response to our adversaries' actions faces a variety of complex problems. Adversaries may threaten the costs of a highly lethal battlefield, limit access to critical domains, challenge the ability to maintain superiority in air and maritime domains, and attempt to deny access into the theater.

Drawing from these complex and interrelated problems, the multi-domain battle concept will ultimately detail these problems to a level that solutions can be developed, applied, tested, and evaluated. Critical to achieving this level of detail is the establishment of a battlefield framework. A battlefield framework is a cognitive tool used to help commanders exercise mission command. The right battlefield framework allows commanders to clearly visualize, describe, direct, lead, and assess the application of combat power in time, space, purpose, and resources. As operational environments change, previous frameworks will prove inadequate to these tasks. Reimagining the battlefield framework is essential to multi-domain battle's success.



(Graphic by author)

Figure. Draft Battlefield Framework Compared to AirLand Battle

AirLand Battle gave us a battlefield framework of deep, close, and rear to frame the problem of how the U.S. military would fight outnumbered and win. Multi-domain battle's framework must allow victory in an even more complex world. Multi-domain battle is developing an expanded battlefield framework to fight across the breadth and depth of enemy capabilities, seamlessly reaching from battlefield to home station and across multiple domains. The figure illustrates a draft version of the battlefield framework, as evolved from AirLand Battle, based on the construct's development at the time of this article's publication.

The draft framework being developed by the Army Capabilities and Integration Center comprises six physical spaces: *deep fires*, *deep area*, *close*, *support*, *operational support area*, and *strategic support area*. In application to real-world missions, these areas are not necessarily linear or contiguous; assignment and delineation of

these areas are completely dependent on the geopolitical terrain where they are placed:

- A deep fires area is beyond the feasible range of conventional maneuver forces, but it is where joint fires and national capabilities may be employed to operational or strategic effect. Likely within sovereign borders, it is largely denied by maneuver elements.
- A deep area contains challenges that must be defeated in order to be successful in the close area. In a deep area, maneuver forces must have the capability to converge and open temporary windows of domain superiority to seize the operational initiative.
- A close area is where the major direct fire fight unfolds. In a close area, ground forces seize and hold key terrain, maneuver to destroy enemy ground formations, and secure populations.
- A support area directly supports the forward fight. A support area enables operations in the

close, deep maneuver, and deep fires areas with sustainment, fires, maneuver support, and mission command capabilities.

- An operational support area holds the central point, key capabilities, and sustainment of joint forces. An operational support area provides the location of critical joint force mission command, sustainment, and fires and strike capabilities.
- A strategic support area stretches from the homeland, along deployment lines of communication, to the initial point of entry. In detail, a strategic support area encompasses home ports and stations, strategic sea and air lines of communication, and homeland communications. Traversing through, and operating within, the strategic support area will undoubtedly require acute cross-combatant command coordination.

It is important that even virtual locations are tied to physical locations within this framework. Space, cyberspace, and information are often cited as exclusive virtual domains or dimensions, but that attribution is inaccurate. Achieving a physical effect requires a physical location of a delivery mechanism, supporting points to facilitate delivery, and the point of the intended effect.

Additionally, across the levels of war and throughout all operational phases, virtual capabilities are positioned in physical space according to their level of employment. For example, an organized group of hackers operating in a deep fires area may use proxy servers of another deep fires area, outside the theater of operations, to deliver effects against a specific unit holding key terrain in the close area. The hackers may do this by targeting their enemies' dependents in the homeland. These effects could be lethal, utilizing social media and open source imagery to select targets on the unit's more vulnerable home-base and community, or they could be nonlethal, such as emptying bank accounts. Through either approach, the targeted unit would become distracted, thus opening a window of opportunity for the enemy to exploit.

Through this battlefield framework, problems identified in "Multi-Domain Battle: Combined Arms for the 21st Century" go from broad strokes to detailed problems we can solve. These problems are conceived along the battlefield framework against specific adversarial capabilities. Through this

approach, whether we are dealing with the lethality of the battlefield or refining capabilities to mitigate weaknesses in our command and control networks, the battlefield framework provides a basis to develop depth of understanding so that DOTMLPF solutions can begin to take shape.

Multi-Domain Battle—A Descendant or Fundamentally Unique?

The question now is whether the battlefield framework has expanded the battlefield, compressed it, or both. While the proposed framework has expanded far beyond AirLand Battle doctrine, it appears to have actually compressed the battlefield. In the draft framework, however, the vastness of space and cyberspace—along with the far-ranging effects of information operations, electronic warfare, and even some conventional weapons—ensures that the battlefield is limitless. From home station to the close area, there is the potential to be engaged instantaneously with long-range fires, cyberspace, space, electronic warfare, and information. If the battlefield truly is compressed, it will drastically change how and why DOTMLPF solutions are sought.

Multi-domain battle, as a concept, and the expansion of the battlefield both draw on a resurgence of past ideas. The battlefield framework brings back a construct similar to deep, close, and rear—the standing operational concept for the U.S. Army until it was replaced in 2001 with full-spectrum operations, only to return with publication of Army Doctrine Publication 3-0, *Operations*, ten years later.¹⁷ There is also a clear focus on the operational level of war and the idea of Skinner's integrated battle. Last, multi-domain battle's genesis comes partly from Deputy Secretary of Defense Robert Work's call for an AirLand Battle 2.0 as a means to operationalize the third offset strategy (initiated November 2014 by then Secretary of Defense Chuck Hagel).¹⁸ While multi-domain battle is a descendant of AirLand Battle, every step of its evolutionary process is designed to confront prevailing challenges by developing solutions that are both new and different.

The prevailing challenges facing the U.S. military today demonstrate a battlefield that is being compressed. In the geographically massive framework of multi-domain battle, planning for the inability to assure communications and domain superiority would be an entirely new focus, although the threat is not entirely new in

war. From this perspective, multi-domain battle evolves as something informed by the past but set to take on circumstances new and far different from those U.S. land forces faced generations ago.

Beyond just the framework, integrating space and cyberspace domains and the electromagnetic spectrum for how Army units and joint forces will fight is something the Department of Defense is just now beginning to understand. Multi-domain battle reintroduces the idea that converged cross-domain capabilities across DOTMLPF are an absolute prerequisite for success; this is how the concept frames integration. Finally, because of the role of new technology, from artificial intelligence to robotics, multi-domain battle accounts for how the character of warfare on the future battlefield will be different.

However, as a concept, multi-domain battle draws back from science fiction and looks to the specific capabilities that will be required to win in the future fight.

The Army—along with all the services—has a clear window of opportunity. The security environment is evolving and will continue to change quickly. Our challenges may extend beyond the immediate adversaries on whom we focus. However, by focusing on how to respond to our adversaries' capabilities, the concepts and subsequent doctrine we create will continue to improve our DOTMLPF capabilities in a converged and integrated fashion across warfighting functions, and, hopefully, across joint forces so we can arrive on the future battlefield with convergence and integration—one step further, one step faster, than our enemy. Victory starts here. ■

Notes

1. Gen. John J. Pershing, memorandum to Maj. Gen. James McAndrew, 7 August 1918, National Archives, records group 120, box 101, entries 16, 17, and 18 (Chief of Staff, GHQ [General Headquarters], Memoranda, Cablegrams, Telegrams, 1917–19), cited by James W. Rainey, "Ambivalent Warfare: The Tactical Doctrine of the AEF [American Expeditionary Forces] in World War I," in *The Parameters of War: Military History from the Journal of the U.S. Army War College*, eds. Lloyd J. Matthews and Dale E. Brown (Washington, DC: Pergamon-Brassey's International Defense Publishers, 1987), 220.
2. Ibid.; Mark Ethan Grotelueschen, *The AEF Way of War: the American Army and Combat in World War I* (Cambridge, UK: Cambridge University Press, 2010), 45; *American Armies and Battlefields in Europe* (Washington, DC: Center of Military History, 1995), 42.
3. Grotelueschen, *The AEF Way of War*, 31–32.
4. Ibid., 45.
5. Richard S. Faulkner, "Hard Knocks, Hubris and Dogma: Leader Competence in the American Expeditionary Forces," in *Leadership: The Warrior's Art*, ed. Christopher D. Kolenda (Carlisle, PA: Army War College Press, 2001), 159.
6. J. P. Clark, *Preparing for War: the Emergence of the Modern U.S. Army, 1815-1917* (Cambridge, MA: Harvard University Press, 2017), 267.
7. Grotelueschen, *The AEF Way of War*, 50–57.
8. *2017 Index of U.S. Military Strength*, The Heritage Foundation website, 2017, accessed 19 May 2017, <http://index.heritage.org/military/2017/assessments/us-military-power/u-s-army/>.
9. Benjamin M. Jensen, *Forging the Sword—Doctrinal Change in the U.S. Army* (Stanford, CA: Stanford University Press, 2016), 8–17.
10. Ibid., 13.
11. Steven Baxter, "Arab-Israeli War October 1973, Lessons Learned, Lessons Forgotten," research paper (Newport, RI: Naval War College, 1994), 1, accessed 31 May 2017, <http://www.dtic.mil/dtic/tr/fulltext/u2/a279557.pdf>; George W. Gawrych, "The 1973 Arab-Israeli War: The Albatross of Decisive Victory," Leavenworth Papers no. 21 (Leavenworth, KS: Combat Studies Institute, 1996); "Yom Kippur War," History.com website, accessed 31 May 2017, <http://www.history.com/topics/yom-kippur-war>.
12. FM 100-5, *Operations* (Washington, DC: U.S. Government Publishing Office, 1986 [now obsolete]), 10 and 19–21.
13. Ibid., 98; Douglas Skinner, *AirLand Battle Doctrine* (Alexandria, VA: Center for Naval Analyses, September 1988), 15.
14. Skinner, *AirLand Battle Doctrine*, 17.
15. FM 100-5, *Operations*, 36.
16. Edwin B. Werkheiser, "Multi-Domain Battle: Combined Arms for the 21st Century," Army–Marine Corps white paper (Fort Eustis, VA: U.S. Army Training and Doctrine Command, 24 February 2017), 3, accessed 25 May 2015, http://www.tradoc.army.mil/MultiDomain-Battle/docs/MDB_WhitePaper.pdf.
17. Bill Benson, "The Evolution of Army Doctrine for Success in the 21st Century," *Military Review* 92, no. 2 (2012): 2–12.
18. Robert Work, "Deputy Secretary of Defense Speech," Army War College Strategy Conference, Carlisle, Pennsylvania, 8 April 2015, accessed 31 May 2017, <https://www.defense.gov/News/Speeches/Speech-View/Article/606661/army-war-college-strategy-conference/>; for more on the third offset strategy, see Chuck Hagel, "Toward a Strong and Sustainable Defense Enterprise," *Military Review* 95, no. 1 (January-February 2015): 8–14.

Congratulations on your retirement!



Ms. Desirae Gieseman is retiring after serving as an Army civilian on Fort Leavenworth for more than fifteen years. During that span she worked in the International Military Student Division of the Command and General Staff College, the Center for Army Tactics, and the Army Doctrine Proponency Division of the Combined Arms Doctrine Directorate. She culminated her career with *Military Review*, where she gained a well-deserved reputation as a consummate editor, writer, and mentor. Her uncompromising standards of excellence in writing significantly enhanced the quality of twenty-two issues of our journal. We will miss Desirae both personally and professionally, and we wish her good luck and happiness in all her future endeavors.

Maj. Steven Miller is retiring after serving as the operations officer for the Army University Press. Formerly a field artillery officer, he served two combat tours in Iraq and one in Afghanistan. With a master's degree in English and experience as an English instructor at West Point and as a public affairs officer, Steven contributed immeasurably to the editing and production of *Military Review*. He was also instrumental in making our challenging transition to a subordinate organization of the Army University Press as smooth and painless as possible. We will miss his professionalism, candor, and humor. We wish him the best of luck as he transitions to the civilian world.

